

AD-A087 457

ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/6 4/2
19702A MLRS, MISSILE NUMBER BR-12, ROUND NUMBER B-80, 7 FEBRUAR--ETC(U)
FEB 80

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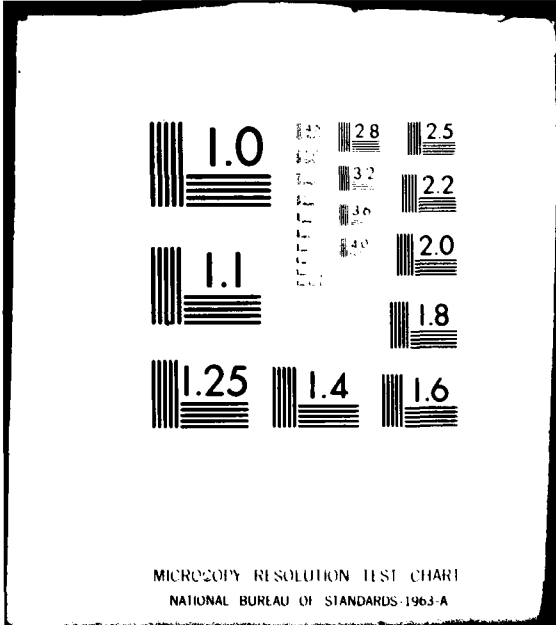
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

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FEBRUARY 1980
AD

LEVEL II

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ADA 087457

METEOROLOGICAL DATA REPORT

19702A MLRS
Missile No. BR-12
Round No. B-80
07 February 1980

by

White Sands Meteorological Team

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Meteorological data gathered for the launching of the 19702A MLRS, Missile Number BR-12, Round Number B-80 are presented in tabular form.

410663

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INTRODUCTION

19702A MLRS, Missile Number BR-12, Round Number B-80,
was launched from LC-33, White Sands Missile Range (WSMR), New Mexico,
at 1400 MST on 07 February 1980. The scheduled launch time was
1400 MST.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team. Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), Wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

SITE AND ALTITUDE

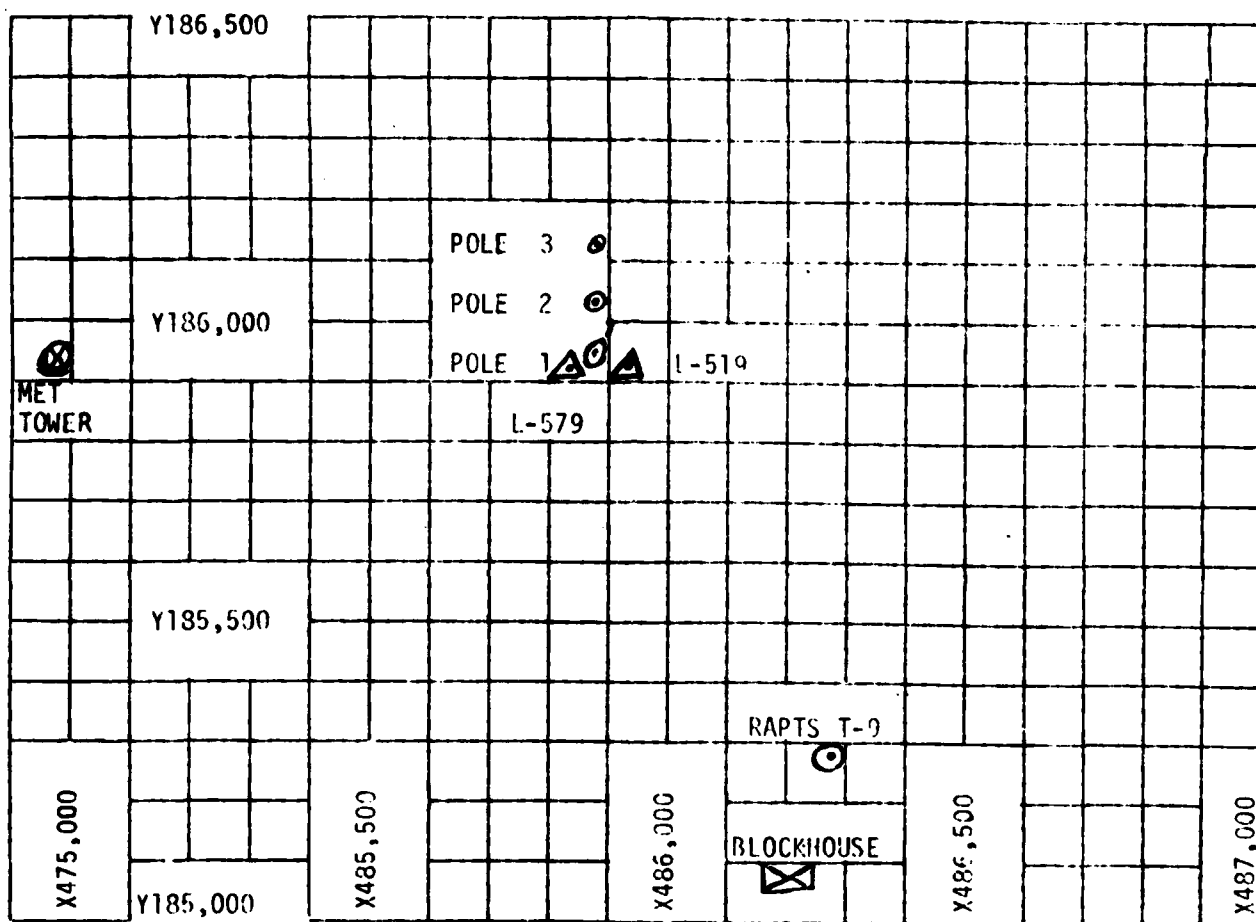
LC-33	2 km
Nick	2 km

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 73,000 feet in 500-foot increments.

SITE AND TIME

WSD 1400 MST

NORTH



1. MET TOWER - 4 Bendix Model T-20 Anemometers at 12 ft, 62 ft, 102 ft, and 202 ft with E/A recorders.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.
 - (a) Pole #1 - 38.7 ft.
 - (b) Pole #2 - 53.0 ft.
 - (c) Pole #3 - 83.6 ft.
3. RAPTS T-9 Radar Automatic Pilot-Balloon Tracking System T-9 Radar.

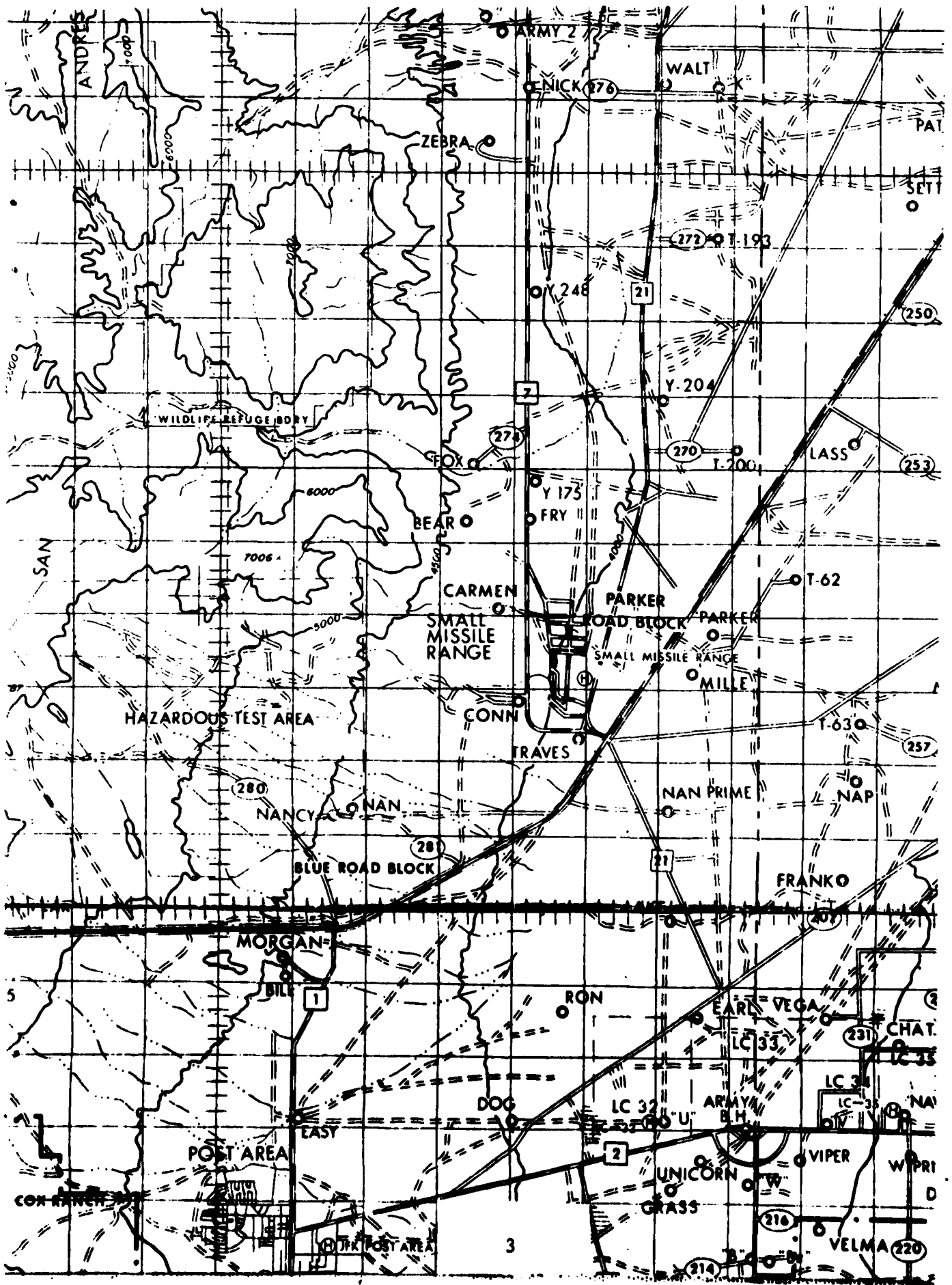


TABLE 1. Surface Observations taken at 1400 MST,
07 February 1980, at LC-33, 19702A MLRS,
Missile Number BR-12, Round Number B-80.

ELEVATION	3983.0	FT/MSL
PRESSURE	868.0	MRS
TEMPERATURE	18.8	°C
RELATIVE HUMIDITY	21	%
DEW POINT	-3.9	°C
DENSITY	1032	GM/M ³
WIND SPEED	15	KTS
WIND DIRECTION	255	DEGREES
CLOUD COVER	3	CU

TABLE 2

LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	272	08	-30	252	08	-30	267	09
-20	274	09	-20	260	10	-20	262	09
-10	287	12	-10	262	10	-10	250	13
0.0	279	15	0.0	293	09	0.0	262	18
+10	288	17	+10	MISG	MISG	+10	250	18

TABLE 3

LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64; Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	268	10	-30	265	17
-20	253	11	-20	264	15
-10	255	09	-10	240	19
0.0	234	13	0.0	257	24
+10	259	17	+10	264	25

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	273	19	-30	248	21
-20	248	19	-20	240	19
-10	248	27	-10	253	19
0.0	261	21	0.0	255	18
+10	262	24	+10	273	24

STATION ALTITUDE 3989.00 FEET MSL
 7 FEB. 80
 ASCENSION NO. 59

SIGNIFICANT LEVEL DATA
 0380020059
 WHITE SANDS
 TABLE 6

GEODEIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT	
	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		
868.2	3989.0	19.5	-2.2	23.0
850.0	4582.2	15.0	-2.0	31.0
764.4	7487.7	5.6	-7.0	37.0
700.0	9832.5	-1.1	-9.0	51.0
684.2	10431.9	-1.5	-10.5	50.0
655.4	11531.2	-4.7	-13.0	52.0
618.2	13053.4	-8.1	-15.7	50.0
585.2	14531.0	-12.0	-19.8	52.0
559.5	16477.0	-14.5	-22.9	49.0
500.0	18353.4	-19.4	-35.6	20.0
449.8	20912.4	-25.8	-42.0	20.0
400.0	23677.0	-31.5	-44.2	27.0
382.4	24720.0	-33.8	-48.0	22.0
345.6	27026.2	-39.6	-53.1	22.0
300.0	30164.0	-46.7		
274.2	32109.9	-50.8		
269.2	32505.1	-50.2		
264.2	32911.3	-46.8		
259.4	33212.0	-46.4		
250.0	34117.3	-47.5		
241.6	34862.4	-46.8		
235.6	35415.8	-43.3		
230.8	35873.9	-41.5		
221.4	36802.4	-41.8		
212.8	37682.8	-43.9		
208.6	38124.5	-43.2		
200.0	39057.9	-43.6		
185.6	40948.3	-44.7		
164.0	45411.4	-49.7		
150.0	48325.4	-52.3		
127.4	48765.1	-57.7		
123.8	49363.1	-57.4		
115.6	51141.2	-60.8		
110.5	51710.0	-60.0		
100.0	53755.4	-62.3		
84.2	57237.9	-59.0		
70.0	61080.3	-62.6		
50.0	67956.8	-61.2		
47.6	68972.5	-58.4		
38.8	73222.9	-50.3		

STATION ALTITUDE 9989.00 FEET MSL
 7 FEB. 80
 ASCENSION NO. 59

UPPER AIR DATA
 0360020059
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 7

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUMID. PERCENT	DENSITY G/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	868.2	19.5	23.0	1031.1	657.2	250.0	9.9	1.000253
4000.0	867.9	19.4	23.1	1031.0	667.1	250.3	10.0	1.000253
4500.0	852.5	15.6	22.9	1020.0	662.6	251.0	13.7	1.000253
5000.0	837.1	13.8	31.9	1014.0	660.7	267.0	17.6	1.000249
5500.0	822.0	12.3	32.9	1000.8	659.0	270.6	21.7	1.000245
6000.0	807.1	10.9	33.9	987.8	657.3	273.3	25.8	1.000241
6500.0	792.5	9.5	35.0	975.0	655.6	275.2	30.0	1.000237
7000.0	778.1	8.0	36.0	962.3	653.9	276.6	34.2	1.000233
7500.0	764.0	6.6	37.1	949.9	652.1	279.1	38.5	1.000229
8000.0	749.8	5.1	40.1	937.0	650.5	281.4	42.8	1.000226
8500.0	735.9	3.7	43.0	924.3	648.8	287.5	43.8	1.000223
9000.0	722.2	2.3	46.0	911.9	647.1	252.5	46.4	1.000220
9500.0	708.8	.9	49.0	899.6	645.4	224.8	45.8	1.000216
10000.0	695.5	-.5	50.7	887.2	643.8	201.5	49.5	1.000213
10500.0	682.4	-1.7	50.1	874.4	642.3	175.7	42.9	1.000209
11000.0	669.4	-3.1	51.0	862.4	640.6	188.8	21.7	1.000205
11500.0	656.7	-4.6	51.9	850.6	638.9	278.2	28.5	1.000201
12000.0	644.1	-5.7	51.4	838.0	637.5	277.2	52.7	1.000198
12500.0	631.7	-6.8	50.7	825.4	636.1	259.0	51.2	1.000194
13000.0	619.5	-8.0	50.1	813.0	634.7	246.5	50.8	1.000190
13500.0	607.4	-9.5	50.6	801.1	633.1	245.6	47.4	1.000187
14000.0	595.5	-10.6	51.3	789.5	631.5	247.5	47.2	1.000184
14500.0	583.9	-11.9	52.0	778.0	629.9	248.5	48.3	1.000180
15000.0	572.4	-12.6	51.3	754.7	629.1	249.2	54.3	1.000177
15500.0	561.1	-13.2	50.5	751.5	628.3	249.7	61.6	1.000174
16000.0	550.0	-13.9	49.7	738.5	627.5	250.6	66.5	1.000170
16500.0	539.1	-14.6	48.6	725.8	626.7	251.7	69.8	1.000167
17000.0	528.5	-15.9	40.9	714.9	625.1	252.7	72.8	1.000163
17500.0	517.7	-17.2	33.2	704.2	623.4	253.8	73.2	1.000160
18000.0	507.5	-18.5	25.5	693.7	621.8	254.8	73.5	1.000157
18500.0	497.1	-19.8	20.0	683.2	620.2	255.7	74.9	1.000154
19000.0	486.9	-21.0	20.0	672.6	618.7	256.5	76.7	1.000151
19500.0	476.9	-22.5	20.0	662.1	617.1	257.5	80.2	1.000149
20000.0	467.1	-23.5	20.0	651.8	615.6	258.5	83.9	1.000146
20500.0	457.6	-24.8	20.0	641.6	614.0	260.9	80.0	1.000144
21000.0	448.1	-26.0	20.2	631.5	612.5	263.6	76.3	1.000142
21500.0	438.7	-27.0	21.5	621.9	611.2	266.0	73.8	1.000139
22000.0	429.5	-28.0	22.8	610.4	610.0	266.6	75.0	1.000137
22500.0	420.5	-29.1	24.0	600.1	608.7	266.5	76.9	1.000134
23000.0	411.7	-30.1	25.3	590.0	607.4	266.2	79.2	1.000132

STATION ALTITUDE 3989.00 FEET MSL
 7 FEB. 80
 ASCENSION NO. 59

UPPER AIR DATA
 C380020059
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.57033 LON DEG

TABLE 7 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GW/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION (TYP) DEGREES	SPEED KNOTS	
23500.0	473.0	-31.1	-44.0	26.6	580.1	606.1	265.7	83.3	1.000130
24000.0	394.0	-32.2	-45.4	25.5	579.3	604.7	265.4	87.1	1.000128
24500.0	386.0	-33.3	-47.2	23.1	560.7	603.3	265.1	89.2	1.000125
25000.0	377.7	-34.5	-48.6	22.0	551.4	601.8	264.9	91.2	1.000123
25500.0	369.5	-35.8	-49.7	22.0	542.3	600.3	264.6	91.5	1.000121
26000.0	361.5	-37.0	-50.8	22.0	533.3	598.7	264.3	91.6	1.000119
26500.0	353.7	-38.3	-51.9	22.0	524.5	597.1	263.7	91.7	1.000117
27000.0	346.0	-39.5	-53.0	22.0	515.9	595.5	263.0	91.7	1.000115
27500.0	339.3	-40.7	-55.3	18.7**	506.9	594.0	262.5	88.6	1.000113
28000.0	330.8	-41.8	-57.9	15.2**	498.0	592.6	262.0	84.7	1.000111
28500.0	323.4	-42.9	-60.9	11.7**	489.3	591.1	260.3	76.7	1.000109
29000.0	316.2	-44.1	-64.5	8.2**	480.8	589.7	258.1	68.6	1.000107
29500.0	309.1	-45.2	-69.3	4.7**	472.4	588.2	254.2	63.2	1.000105
30000.0	302.2	-46.3	-79.2	1.1**	464.2	586.7	250.0	58.7	1.000103
30500.0	295.4	-47.4			455.8	585.3	247.4	57.5	1.000102
31000.0	288.6	-48.5			447.5	584.0	246.0	56.2	1.000100
31500.0	282.0	-49.5			439.3	582.6	247.0	54.5	1.000098
32000.0	275.6	-50.6			431.3	581.2	249.2	55.4	1.000096
32500.0	269.3	-50.2			423.7	581.7	252.7	60.6	1.000094
33000.0	263.1	-45.7			404.8	586.2	255.0	67.5	1.000090
33500.0	257.2	-46.7			395.6	586.3	256.1	76.8	1.000088
34000.0	251.3	-47.3			387.8	585.4	255.3	80.3	1.000086
34500.0	245.6	-47.1			378.6	585.7	253.3	79.5	1.000084
35000.0	240.1	-45.9			368.1	587.2	251.5	82.0	1.000082
35500.0	234.7	-43.0			355.2	591.0	250.2	85.7	1.000079
36000.0	229.3	-41.6			345.3	592.8	249.5	91.4	1.000077
36500.0	224.4	-41.7			337.8	592.6	248.5	95.2	1.000075
37000.0	219.4	-42.3			331.1	592.0	246.7	94.8	1.000074
37500.0	214.6	-43.5			325.4	590.4	245.1	93.8	1.000072
38000.0	209.8	-43.4			316.1	590.5	244.0	91.1	1.000071
38500.0	205.1	-43.4			310.9	590.6	243.5	88.2	1.000069
39000.0	200.5	-43.6			304.3	590.3	244.0	84.7	1.000068
39500.0	196.0	-43.9			297.8	589.9	246.2	81.9	1.000066
40000.0	191.7	-44.1			291.6	589.5	248.5	80.2	1.000065
40500.0	187.4	-44.4			285.4	589.2	251.0	79.0	1.000064
41000.0	183.2	-44.8			279.4	588.7	253.7	78.4	1.000062
41500.0	179.0	-45.8			274.3	587.4	256.4	78.4	1.000061
42000.0	175.0	-46.8			269.3	586.1	259.3	80.7	1.000060
42500.0	171.0	-47.8			264.4	584.8	262.1	83.3	1.000059
43000.0	167.1	-48.9			259.6	583.4	263.3	85.4	1.000058

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.00 FEET MSL
 7 FEB. 69 1400 HRS MST
 ASCENSION NO. 59

UPPER AIR DATA
 038020059
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 8 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES(TN)	SPEED KNOTS	
43500.0	163.3	-49.8		254.8	562.2	264.2	87.5	1.000057
44000.0	159.6	-50.5		249.7	581.3	265.0	87.6	1.000056
44500.0	155.9	-51.2		244.6	580.4	265.4	83.7	1.000054
45000.0	152.3	-51.9		239.7	579.5	265.8	79.7	1.000053
45500.0	148.6	-52.6		234.9	578.6	265.9	75.5	1.000052
46000.0	145.0	-53.4		230.3	577.6	266.0	71.2	1.000051
46500.0	141.4	-54.1		225.7	576.5	265.8	71.4	1.000050
47000.0	136.5	-54.9		221.2	575.5	265.7	72.5	1.000049
47500.0	135.3	-55.7		216.8	574.5	266.0	75.6	1.000048
48000.0	132.1	-56.5		212.4	573.4	267.5	79.1	1.000047
48500.0	129.0	-57.3		208.2	572.4	267.4	79.8	1.000046
49000.0	126.0	-57.6		203.6	572.0	267.1	80.0	1.000045
49500.0	123.0	-57.7		198.8	571.9	266.3	77.2	1.000044
50000.0	120.0	-58.6		194.9	570.6	265.0	72.2	1.000043
50500.0	117.2	-59.6		191.1	569.3	264.5	67.0	1.000043
51000.0	114.4	-60.5		187.4	568.1	265.6	61.6	1.000042
51500.0	111.6	-60.3		182.7	568.4	266.9	56.7	1.000041
52000.0	108.9	-60.3		178.3	568.3	268.4	55.0	1.000040
52500.0	106.3	-60.9		174.5	567.6	270.0	53.3	1.000039
53000.0	103.8	-61.5		170.7	566.8	272.1	54.2	1.000038
53500.0	101.3	-62.0		167.1	566.1	274.1	55.6	1.000037
54000.0	98.8	-62.1		163.1	566.0	278.5	50.8	1.000036
54500.0	96.4	-61.6		158.8	566.6	285.6	43.2	1.000035
55000.0	94.1	-61.1		154.7	567.3	295.3	35.9	1.000034
55500.0	91.9	-60.7		150.6	567.9	305.7	26.3	1.000034
56000.0	89.6	-60.2		146.7	568.5	326.5	18.4	1.000033
56500.0	87.5	-59.7		142.8	569.1	368.0	13.9	1.000032
57000.0	85.4	-59.3		139.1	569.7	340.2	9.6	1.000031
57500.0	83.3	-59.2		135.7	569.8	336.2	6.2	1.000030
58000.0	81.3	-59.7		132.7	569.2	271.9	7.2	1.000030
58500.0	79.4	-60.2		129.8	568.6	268.4	10.9	1.000029
59000.0	77.5	-60.6		127.0	567.9	266.9	20.8	1.000028
59500.0	75.6	-61.1		124.2	567.3	266.2	33.8	1.000028
60000.0	73.8	-61.6		121.5	566.7	255.5	45.2	1.000027
60500.0	72.0	-62.0		118.8	566.0	257.5	48.4	1.000026
61000.0	70.3	-62.5		116.2	565.4	259.2	51.6	1.000026
61500.0	68.6	-62.5		113.4	565.4	263.7	39.5	1.000025
62000.0	66.9	-62.4		110.6	565.5	280.1	19.9	1.000025
62500.0	65.3	-62.3		107.9	565.7	356.6	10.9	1.000024
63000.0	63.7	-62.2		105.2	565.8	42.9	21.2	1.000023

UPPER AIR DATA
 0230020059
 WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL
 7 FEB. 80
 ASCENSION NO. 59

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 7 (cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES(TN)	SPEED KNOTS	
63500.0	62.2	-62.1		102.6	566.0	55.0	35.7	1.000023
64000.0	60.7	-62.0		100.1	566.1	55.7	33.5	1.000022
64500.0	59.2	-61.9		97.6	566.2	50.0	22.4	1.000022
65000.0	57.8	-61.8		95.2	566.4	50.9	11.1	1.000021
65500.0	56.4	-61.7		92.9	566.5	261.8	11.0	1.000021
66000.0	55.0	-61.6		90.6	566.6	259.5	27.6	1.000020
66500.0	53.7	-61.5		88.4	566.8	256.8	36.3	1.000020
67000.0	52.4	-61.4		86.2	566.9	256.3	40.7	1.000019
67500.0	51.1	-61.3		84.1	567.0	256.4	43.1	1.000019
68000.0	49.9	-61.1		82.0	567.3	260.1	34.0	1.000018
68500.0	48.7	-59.7		79.5	569.2	266.5	25.1	1.000018
69000.0	47.5	-58.4		77.1	570.9	261.6	16.4	1.000017
69500.0	46.4	-58.4		75.3	570.9	321.3	10.8	1.000017
70000.0	45.3	-58.4		73.5	570.9	10.3	13.7	1.000016
70500.0	44.2	-58.4		71.7	571.0	9.9	15.7	1.000016
71000.0	43.2	-58.4		70.0	571.0	9.7	17.6	1.000016
71500.0	42.2	-58.3		68.4	571.0			1.000015
72000.0	41.2	-58.3		66.7	571.0			1.000015
72500.0	40.2	-58.3		65.1	571.0			1.000014
73000.0	39.2	-58.3		63.6	571.0			1.000014

STATION ALTITUDE 9989.00 FEET MSL
 7 FEB. 60
 ASCENSION NO. 59

MANDATORY LEVELS
 098020059
 WHITE SANLS
 TABLE 8

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

PRESSURE GEOPOTENTIAL MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUMID. PERCENT	WIND DATA	
			DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	15.0	31.	262.2	14.3
800.0	10.2	34.	274.3	27.9
750.0	5.2	40.	281.4	42.8
700.0	-1	51.	208.7	50.9
650.0	-5.2	52.	277.5	41.0
600.0	-10.1	51.	247.0	46.7
550.0	-13.9	50.	250.6	66.4
500.0	-19.4	20.	255.4	74.3
450.0	-25.8	20.	263.0	77.1
400.0	-31.5	27.	265.6	64.7
350.0	-38.9	22.	249.2	91.7
300.0	-46.7		254.9	56.4
250.0	-47.5		244.7	80.2
200.0	-43.6		244.7	84.5
175.0	-46.8		259.2	80.5
150.0	-52.3		265.9	77.2
125.0	-57.5		267.0	60.1
100.0	-62.3		275.4	55.2
80.0	-60.0		274.9	9.4
70.0	-62.6		259.4	51.9
60.0	-62.0		54.0	29.2
50.0	-61.2		259.4	35.4
40.0	-58.3			

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.